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Cancer Center

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A Promising New Therapy for Advanced Prostate Cancer

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Michael Rosenblum received an experimental new prostate cancer treatment after the disease spread to his bones. Since then, he has been symptom-free.

Update: On June 16, 2021, Novartis announced that ^{177}Lu -PSMA-617 received Breakthrough Therapy designation from the FDA. The designation is used to help speed the development and review of therapies that demonstrate the potential to be a substantial improvement over available treatments.

On June 23, 2021, trial results were published in the [*New England Journal of*](#)

Medicine. Dr. Morris presented these data on June 6, at the annual meeting of the American Society of Clinical Oncology.

Prostate cancer treatment stands on the brink of a major advance with the development of a new treatment that zeros in on cancer cells to destroy them. The therapy, called ^{177}Lu -PSMA-617, uses a molecule that selectively seeks out and attaches to a specific protein on the cancer cell surface. The technology then delivers radiation that damages DNA and destroys the cancer cell. This treatment can find and demolish cancer cells that are resistant to other therapies.

The emergence of the new treatment, developed by the pharmaceutical company Novartis, could be a breakthrough for treating prostate cancer after it has spread and grown resistant to other drugs. Prostate cancer is the second leading cause of cancer death in American men and kills 34,000 people in the US every year.

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“Effective treatments are limited for metastatic prostate cancer that has progressed despite treatments that target the androgen receptor and chemotherapy, so this could be a game-changer,” says Memorial Sloan Kettering medical oncologist **Michael Morris**. “We hope this therapy will receive FDA approval.”

The US Food and Drug Administration **recently approved a new prostate cancer imaging test** based on similar technology. On a PET scan, the test lights up the cancerous cells that would otherwise be hidden, enabling doctors to precisely target treatment.

“The benefits these advances will bring to men with this common disease cannot be overstated,” Dr. Morris says.

Both advances in imaging and therapy rely on targeting a critical protein, called prostate-specific membrane antigen (PSMA), that is not found on most normal

cells but is overexpressed in cancer cells, especially those that have spread.

On June 6, at the annual meeting of the American Society of Clinical Oncology, Dr. Morris is presenting results from a clinical trial showing the effectiveness of ^{177}Lu -PSMA-617. The clinical trial, called VISION, involved more than 800 patients with advanced prostate cancer who had been previously treated with chemotherapy and hormone therapy.



Michael Morris

In the trial, the addition of ^{177}Lu -PSMA-617 to standard treatment slowed progression of prostate cancer. People receiving the drug had a median of 8.7 months of progression-free survival — the period when the disease didn't worsen — compared with 3.4 months for those receiving only standard treatment. Men receiving ^{177}Lu -PSMA-617 also lived longer, a median of 15.3 months compared with 11.3 months in those who did not get the treatment.

A Team Effort

The Molecular Imaging and Therapy Service, led by [Heiko Schöder](#), played a key role in the development and testing of a slightly different PSMA-directed imaging technology at MSK. The principal investigator for the VISION trial at MSK was nuclear medicine physician [Lisa Bodei](#). She and other nuclear medicine physicians, who specialize in using radioactive materials to diagnose and treat cancer, administered the new treatment to MSK participants.

"This advance is the result of years of work by the community of physicians promoting the use of PSMA agents," Dr. Schöder says. "It's gratifying to see a collaborative effort result in a breakthrough that has the potential to make a difference for so many patients with advanced prostate cancer."

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A newly approved imaging technology can identify the location of prostate cancer cells, allowing doctors to choose the best treatment.

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Before receiving the therapy, patients in the VISION trial were scanned with PSMA-directed PET imaging to make sure enough PSMA was present in the cells to make them likely to respond to the treatment. If so, they received ^{177}Lu -PSMA-617 by injection over four to six sessions, spaced six weeks apart. In the trial, side effects were well tolerated. Among the most common was dry mouth.

“MSK played a very instrumental role in bringing PSMA-based imaging and treatments to the point where it can help patients,” says Dr. Morris, whose research has been supported by the philanthropy of John and Susan Magnier.

A New Lifeline

The new therapy could be a lifeline for many men with metastatic prostate cancer. Just ask Michael Rosenblum. In 2019, his prostate cancer was resistant to chemotherapy and other treatments and had spread to his bones. His PSA levels — a marker that normally should be in the single-digit range — had soared to more than 100.

Dr. Morris enrolled Michael in the VISION clinical trial, which he was helping lead. Michael began treatment in July 2019, with his final session occurring in February 2020. Since then, the 75-year-old, who just celebrated his 50th wedding anniversary, has been free of symptoms. His scans have improved, and his PSA is less than 1.

“The benefits these advances will bring to men with this common disease cannot be overstated.”



Michael J. Morris



medical oncologist

“I had no side effects either on the day of the procedures or afterward,” Michael says. “My PSA went right down, and my blood tests have been really good. From how I feel today, you would never think I had cancer a few years ago.”

For Dr. Morris, the recent inroads against this stubborn disease are especially gratifying.

“I have been involved in the PSMA research since the end of my fellowship at MSK in the late 1990s,” he says. “It’s amazing to see it all come to fruition this year.”

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